

CLAIMS

1. Method for selectively covering a micro worked surface on a die (55) comprising an upper face (11) in which at least one etching (12) is made, **characterized in that** it comprises the steps of:
 - 5 - (140) laying a film (30) of negative photoresist on said upper face (11), said film (30) covering said at least one etching (12);
 - (141) exposing said film (30) of negative photoresist to ultraviolet radiation (UV), by means of a first mask (31) on a zone (27) that covers said at least one etching (12), so that said film (30) polymerizes in correspondence with said zone (27);
 - 10 - (142) removing the non-polymerized portion of said film (30) of negative photoresist, in such a way that, in correspondence with said zone (27), a covering (33) remains over said at least one etching (12);
 - (171) spreading a layer (161) of lift off resist on said upper face (11) of said die (55) and on said covering (33);
 - 15 - (172) spreading a layer (160) of positive photoresist on said layer (161) of lift off resist.
2. Method according to claim 1, **characterized in that** it also comprises the steps of :
 - 20 - (174) exposing said layer (160) of positive photoresist to ultraviolet (UV) radiation, by means of a mask (13) that includes at least one window (122), in such a way that said layer (160) depolymerizes in correspondence with said window (122);
 - (175) removing the depolymerized portion of said layer (160) of positive photoresist, in such a way that at least one cavity (64) is obtained.
 - 25 - (175) removing the depolymerized portion of said layer (160) of positive photoresist, in such a way that at least one cavity (64) is obtained.
3. Method according to claim 2, **characterized in that** said at least one cavity (64) comprises edges (24) and sub-etchings (22), said layer (160) of positive photoresist comprising an upper surface (114), said method also comprising the steps of :
 - 30 - (176) applying a first deposited layer (52, 54) on said upper face (11) and a further deposited layer (116) on said upper surface (114);
 - (177) removing said layer (160) of positive photoresist and said layer (161) of lift off resist by means of a solvent that acts through said edges (24) and said sub-etchings (22), and casting aside said further deposited layer (116);
 - (143) removing said film (30) of negative photoresist.
- 35 4. Method according to claim 3, **characterized in that** said first deposited layer (52, 54) and said further deposited layer (116) are metallic.
5. Method according to claim 4, **characterized in that** said first deposited layer (52,

- 54) and said further deposited layer (116) include at least one layer of gold or of titanium or of platinum.
6. Method according to claim 4, **characterized in that** said first deposited layer (52, 54) and said further deposited layer (116) include at least one layer of gold / tin alloy.
7. Method according to claim 3, **characterized in that** said deposited layer (116) and said deposited layer (52, 54) comprise non metallic materials.
8. Method according to claim 7, **characterized in that** said non-metallic materials comprise an oxide.
9. Method according to claim 7, **characterized in that** said non-metallic materials comprise a carbide.
10. Method according to claim 7, **characterized in that** said non-metallic materials comprise a nitride.
11. Method for selectively covering a micro machined surface on a die (55) comprising an upper face (11) in which at least one etching (12) is made, **characterized in that** it comprises the steps of:
- (140) laying a film (30) of negative photoresist on said upper face (11), said film (30) covering said at least one etching (12);
 - (141) exposing said film (30) of negative photoresist to ultraviolet radiation (UV), by means of a first mask (31) on a zone (27) that covers said at least one etching (12), so that said film (30) polymerizes in correspondence with said zone (27);
 - (142) removing the non-polymerized portion of said film (30) of negative photoresist, in such a way that, in correspondence with said zone (27), a covering (33) remains over said at least one etching (12);
 - (172) spreading a layer (160) of positive photoresist on said upper face (11 of said die (55) and on said covering (33).
12. Method according to claim 11, **characterized in that** it also comprises the steps of:
- (174) exposing said layer (160) of positive photoresist to ultraviolet (UV) radiation, by means of a mask (13) that includes at least one window (122), in such a way that said layer (160) depolymerizes in correspondence with said window (122);
 - (175) removing the depolymerized portion of said layer (160) of positive photoresist, in such a way that at least one cavity (64') is obtained.
13. Method according to claim 12, **characterized in that** said at least one cavity (64') comprises walls (15), said layer (160) of positive photoresist comprising an upper surface (114), said method also comprising the steps of:

- (176) applying a first deposited layer (52, 54) on said upper face (11) and a further deposited layer (116) on said upper surface (114);
 - (177) removing said layer (160) of positive photoresist by means of a solvent that acts through said walls (15), and casting aside said further deposited layer (116);
 - (143) removing said film (30) of negative photoresist.
14. Method according to claim 13, **characterized in that** said first deposited layer (52, 54) and said further deposited layer (116) are metallic.
15. Method according to claim 14, **characterized in that** said first deposited layer (52, 54) and said further deposited layer (116) comprise at least one layer of gold or of titanium or of platinum.
16. Method according to claim 14, **characterized in that** said first deposited layer (52, 54) and said further deposited layer (116) comprise at least one layer of gold / tin alloy.
17. Method according to claim 13, **characterized in that** said first deposited layer (52, 54) and said further deposited layer (116) are made of non-metallic materials.
18. Method according to claim 17, **characterized in that** said non-metallic materials comprise an oxide.
19. Method according to claim 17, **characterized in that** said non-metallic materials comprise a carbide.
20. Method according to claim 17, **characterized in that** said non-metallic materials comprise a nitride.